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(54) **A metering device, for example a postage meter**

(57) A metering device, such as a postage meter, can be updated by a code bearing means which is provided with for instance, magnetic code. Upon inserting the code bearing means in the metering device and inputting a further code, the metering device is conditioned for updating responsive to a code from the code bearing means and the further code being in predetermined correlation, up-dating the taking place, and the code-bearing means is then rendered wholly or partially unusable.

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The drawing originally filed was informal and the print here reproduced is taken from a later filed formal copy.

FIG. 1

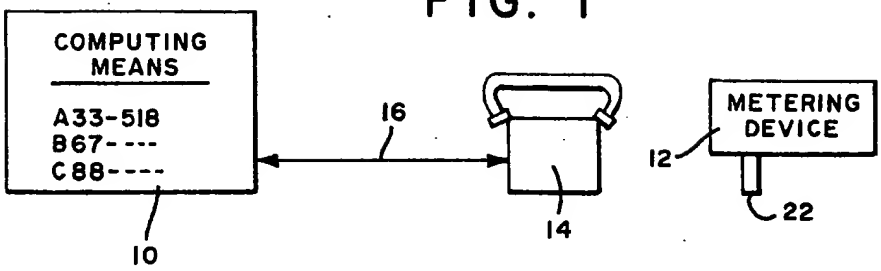


FIG. 2

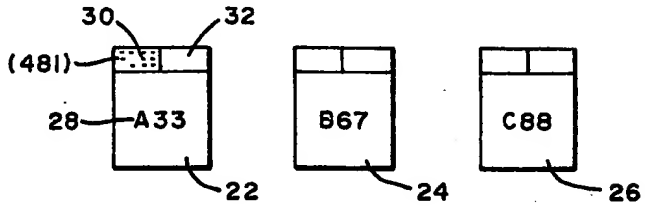
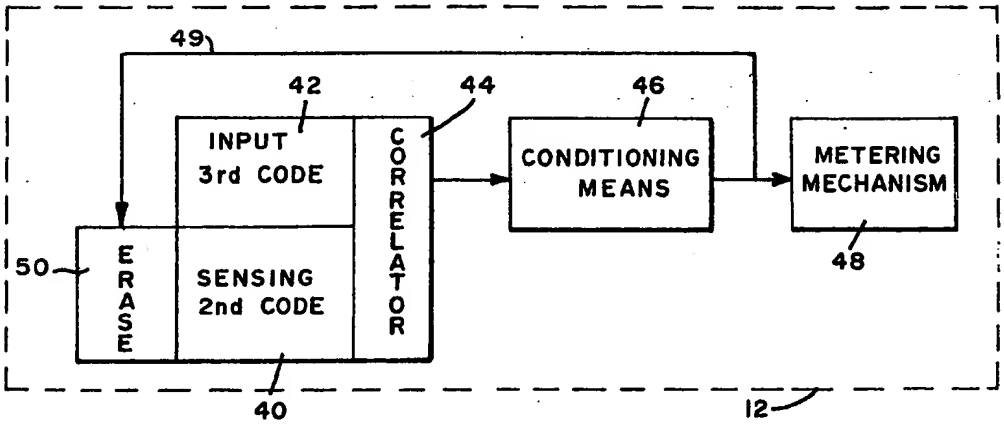


FIG. 3



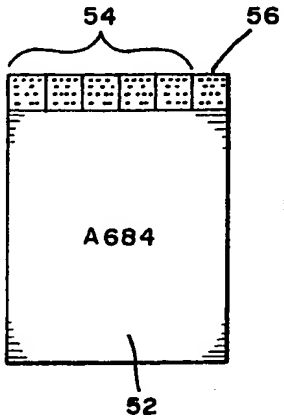


FIG. 4

SPECIFICATION
Metering system

This invention concerns metering systems in which a meter upon being updated is conditioned for dispensing a predetermined sum or quantity of articles or is conditioned for dispensing postage stamps or imprinting validation stamps up to a predetermined sum of money. A typical specific example of such metering systems is the well known postage meter which from time to time needs to be recharged with a sum of money in order to dispense validation of variable amounts of money. When the supply of money or credit available is exhausted, the meter is blocked from further operation. The meter can be charged with a new sum of money prior to reaching its fully exhausted condition and, thus, remains operable while a sum of money, or credit, is available. Meters of the type described above are well known and some of the arrangements for meters include means for charging the meter without physically bringing the meter to the Post Office. The meter may include a storage tape having numbers to be used in predetermined sequence, the tape being stored in the meter and the user of the meter who is a subscriber to the service, is informed of a currently applicable number which correlates with the respective number of the tape. Responsive to the existence of correlation between the number set on the lock and the current number on the storage tape, the meter can be updated or recharged and the next successive number on the tape becomes applicable to the following recharging operation. The user is advised of the next number to be used for charging the meter.

The present invention seeks to avoid the need for a storage tape in the meter by employing instead a uniquely coded code bearing means in combination with a computer for updating the meter.

Accordingly, the present invention provides a metering system of the postage meter type or similar type comprising a metering device adapted to receive a code bearing means provided with code data; input means coupled to said metering device for providing input data having a predetermined relation to the code data of said code bearing means; means associated with said metering device for sensing the code data of said code bearing means and said input data and in response to said code data of said code bearing means and said input data being in predetermined correlation causing said metering device to be conditioned for being updated, and cancelling means associated with said metering device for rendering the code bearing means entirely or partially unusable for reuse responsive to said metering device having been updated.

The invention will now be described by way of example with reference to the accompanying drawings, wherein:—

Figure 1 is a schematic block diagram of an embodiment of metering system in accordance with the invention,

Figure 2 is a schematic illustration of several code bearing means;

Figure 3 is a schematic block diagram of portions forming the metering device, and

Figure 4 is an alternative embodiment of the code bearing means shown in Figure 2.

Referring now to the figures and Figure 1 in particular, a computing means 10 is located remote from a metering device 12, such as a postage meter or similar device. Also remote from the computing means 10 there is a transmitting means 14 which is connected to the computing means 10 by a suitable electrical transmitting line 16, for instance, a cable or a wireless connection. Most suitably, the transmitting means is a telephone with signal input means such as audio signals or electrical push buttons (push button telephone) which is response to an output from the computing means 10 provides the data provided by the computing means 10 in audio or visual form as is well known, for instance, in connection with stock market quotations, see U.S. Patent No. 3,082,402. The telephone 14 may be in proximity to the metering device 12, but it may also be remote from the metering device.

The metering device 12 is recharged or updated by the use of a code bearing means of the type illustrated in Figure 2. In Figure 2 three illustrative code bearing means 22, 24 and 26 are shown. Each code bearing means, typically a plastic card similar to a credit card, is provided with a first code 28 which is discernible to a person and for this reason such code may comprise printed characters "A33" as evident on the code bearing member. On members 24 and 26 the first code typically is "B67" and "C88" respectively.

Each code bearing member includes a second code which is obscured and therefore not readily discernible to the user of the system. To this end the second code may comprise magnetic characters disposed in a field 30. For the present example it is assumed that the second code of the code bearing member 22 comprises a three digit number "481". The corresponding second codes on the members 24 and 26 are distinct for each such member. Optionally, each member 22, 24 and 26 may include also a further code in field 32 which associated such code bearing member with a particular metering device 12 and, therefore, such further code may be considered a validation code which validates the use of a particular code bearing member with a respective predetermined metering device.

The computing means 10 has stored therein the first codes of the code bearing members which have been issued to a subscriber using the metering device 12. Thus, the computing means has stored therein the data "A33", "B67" and "C88" indicated on the code bearing members 22, 24 and 26. Associated with each first code data, the computing means also stores a plurality of third codes, each such third code data being correlated with the second code on the respective

code bearing means. To clearly illustrate this correlation, it was assumed that member 22 has a first code "A33" and a second non-discernible code "481". The computing means 10 stores associated with "A33" a third code "518", the latter code being the nine complement numerals. Other correlations of course, can be selected at the option of the designer of the system and the specific type of correlation is not pertinent to the invention.

Operation of the foregoing arrangement will be more clearly evident from the following description. In order to update the metering device 12, the subscriber takes a code bearing member, such as member 22 and brings it into engagement with the metering device 12, see Figure 1, for instance a slot in the metering device. As seen in Figure 3, the metering device includes sensing means 40 for reading the magnetic code in field 30, i.e. the second code which is not discernible to the subscriber. The subscriber communicates the first code "A33" via the transmitting means 14 and 16 to the computer 10 whereupon the computer by the use of internal search means searches for "A33" and provides as output a signal corresponding to numerals "518" which is communicated via the transmitting means to the subscriber, he receiving this data as visual output or spoken words at the telephone 14. The metering device includes manual input means 42, pushbuttons for instance, so that the subscriber now inputs the third code "518" provided by the computer 10. A correlator 44 associated with the metering device 12 establishes the existence of predetermined correlation between the second and third codes and responsive to the condition of correlation actuates conditioning means 46 which permit the metering mechanism 48 to be changed or updated. The conditioning means 46 may comprise means for the temporary coupling shafts within the meter charging mechanism, see U.S. Patent No. 3,501,744. Responsive to the actuation of the conditioning mechanism 46 a signal is fed via conductor 49 to an erase means 50 which erases the code from the field 30 of the code bearing member 22 to render the code bearing member invalid for further use. Alternatively, other cancellation or voiding means may be used such as heat or cutting means.

Assuming that the predetermined condition of correlation is not attained the condition means 46 remains non-actuated and the metering mechanism 48 cannot be updated.

Alternatively, instead of erasing or voiding the second code on the code bearing member, erasing means associated with the computing means may be provided to erase, responsive to providing the third code, either the first code, the third code or both codes from the storage medium provided in the computing means, the principal object being to foil for the immediate future correlation between the first, second and third code data used in a preceding updating operation.

Figure 4 illustrates schematically an alternative embodiment of the code bearing member. The member 52 includes a first code "A684", a plurality of second code fields 54 and a field 56 for the validation code. This particular member 52 is usable for a plurality of updating operations as governed by the quantity of fields provided. In this embodiment only a single field is erased responsive to each updating operation or, alternatively, only a particular third code in the computing means is erased since the first code must be preserved for additional updating operations.

In the foregoing system, the subscriber is provided with code bearing means for which a corresponding charge is made or, alternatively the subscriber is invoiced responsive to updating operation as recorded by the computing means and evident by the issuance of third code data.

It will be apparent, moveover, that the second code and third code data need not to be different but may be identical, and correlation is achieved by matching the respective code data at the correlator 44.

The above description deals specifically with a postage metering device. It should be understood that the described arrangement is not limited to dispensing postage, but that the metering device will be found usable also for purposes other than that specifically illustrated and described.

CLAIMS

1. A metering system of the postage meter type or similar type comprising: a metering device adapted to receive a code bearing means provided with code data; input means coupled to said metering device for providing input data having a predetermined relation to the code data of said code bearing means; means associated with said metering device for sensing the code data of said code bearing means and said input data and in response to said code data of said code bearing means and said input data being in predetermined correlation causing said metering device to be conditioned for being updated, and cancelling means associated with said metering device for rendering the code bearing means entirely or partially unusable for reuse responsive to said metering device having been updated.

2. A metering system as set forth in Claim 1, wherein said input means comprises manually operable means.

3. A metering system as set forth in Claim 1 or Claim 2, wherein said code data comprises magnetic characters.

4. A metering system as set forth any preceding claim, wherein said cancelling means comprises code erasing means.

5. A metering system as set forth in any preceding claim, wherein said means associated with said metering device acts upon a conditioning means responsive to said code of said code bearing means and said input data being in predetermined correlation.

6. A metering system as set forth in any preceding claim, wherein said conditioning means includes means to couple shafts to one another.

7. A metering system of the postage meter type or similar type comprising a metering device adapted to receive a code bearing means; a code bearing means for use with said metering device provided with code data; manually operable input means coupled to said metering device for providing input data; correlating means coupled to said metering device and said input means for receiving said code data and said input data and responsive to said code data and input data being in predetermined correlation; conditioning means coupled for being conditioned responsive to the existence of correlation and in response to being conditioned permitting said metering device to be updated to reflect an increased credit balance, and cancelling means coupled to said conditioning means for rendering said code bearing means entirely or partially unusable for reuse responsive to said conditioning means having been actuated.

8. A metering system as set forth in Claim 7, wherein said cancelling means is magnetic code erasing or altering means.

9. A metering system as set forth in Claim 7 or Claim 8, wherein said code data is contained in a predetermined field of said code bearing means.

10. A metering system as set forth in any of claims 7 and 9, wherein said code bearing means is provided with additional code data for keying said code bearing means to a specific metering device.

11. A metering system substantially as hereinbefore described with reference to and as illustrated in Figures 1 to 3 alone, or as modified by Figure 4 of the drawings.

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